



**SERVICE QUALITY REGULATION OF
ELECTRIC AND GAS UTILITIES IN
MASSACHUSETTS—ASSESSMENT
AND RECOMMENDATIONS FOR
POSSIBLE ENHANCEMENTS**

**Prepared for the Commonwealth of
Massachusetts Office of Attorney General
October 2004**

**ENERGY ADVISORS, LLC
FREEPORT, MAINE
www.energyadvisorsllc.com**

EXECUTIVE SUMMARY

Like many other states, Massachusetts requires its electric and gas utilities to maintain service quality (“SQ”) plans, under which they are subject to financial penalties for failure to meet performance benchmarks. The Department of Telecommunications and Energy (“DTE”) adopted guidelines in 2000 that apply to most of the plans; others were imposed as conditions of approving mergers or rate plans. The DTE has committed to reviewing the guidelines and plans in 2005.

This report examines and discusses possible enhancements for five aspects of the current guidelines and plans:

- Penalty Provisions;
- SQ Measures
- Regulatory Process for Review of SQ Plans and Reports
- Annual Utility SQ Report Cards
- Assuring Data Quality/Integrity And Consistency Among Utilities

Utilities are generally subject to penalties of up to two percent of their transmission and distribution revenue if their performance falls one standard deviation below their company-specific average performance for the past several years. Performance is measured in seven (for gas utilities) or eight (for electric utilities) areas under three categories: safety and reliability, customer service and billing, and consumer division statistics. The plans also require reporting of several types of service quality related information that are not subject to performance penalties.

Penalties. Penalty provisions could be made more effective in several ways:

- by requiring improvement in performance, rather than simply meeting historical average performance levels;
- by eliminating the maximum penalty per-measure or raising the overall two-percent penalty cap;
- by limiting penalty exposure to the most critical performance areas;
- by adjusting penalty formulas to accelerate the rate at which penalties accrue; and

- by reducing or eliminating the availability of penalty offsets for better-than-benchmark performance in particular areas.

SQ Measures. The service quality measures in current plans might be improved by revisiting the allocation of penalty exposure and determining if the current list of measures represents those areas of performance most critical to customers. For instance, it may be productive to attach penalty exposure to poor performance in momentary outages and damage to customer property, while eliminating exposure for damage to company property, on-cycle meter reads and billing accuracy. The latter two may be more effectively dealt with through customer service guarantees.

Regulatory Process for Review of SQ Plans and Reports. The DTE's current practice of conducting only cursory review of annual utility SQ reports creates a risk that utility performance is being improperly measured. Experience of other jurisdictions demonstrates the factors that can lead to inaccurate performance data. The DTE should allow discovery rights, hearings and other vehicles to verify data used in measuring service quality.

Annual Utility SQ Report Cards. The current mechanism for informing customers of utility performance in service quality, *i.e.*, requiring identification of the DTE's website in customer bills, is inadequate. Massachusetts could strengthen incentives for good performance by requiring annual "utility SQ report cards" be sent to all customers, as is done in other states.

Assuring Data Quality/Integrity and Consistency Among Utilities. Regulatory tools to help ensure data quality/integrity and consistency include use of precise definitions and protocols; requirements for regulatory approval of changes in data tracking and self-reporting of flaws in data-gathering; audits; and investigations.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
INTRODUCTION	4
I. PENALTY PROVISIONS	6
A. Status Quo	6
B. Concerns and Possible Enhancements	10
1. Use of Company-Specific Historical Averages as Benchmarks	10
2. The Maximum Penalty Exposure	16
3. The Dilutive Effect of Apportioning Maximum Penalty Exposure Over Several Performance Standards	18
4. The Effect of Allowing Penalty Offsets or Rewards	19
II. SQ MEASURES	22
A. Status Quo	22
B. Concerns and Possible Enhancements	22
III. REGULATORY PROCESS FOR REVIEW OF SQ PLANS AND REPORTS	26
A. Status Quo	26
B. Concerns and Possible Enhancements	27
IV. ANNUAL UTILITY SQ REPORT CARDS	33
A. Status Quo	33
B. Concerns and Possible Enhancements	36
V. ASSURING DATA QUALITY/INTEGRITY AND CONSISTENCY AMONG UTILITIES	38
A. Status Quo	38
B. Concerns and Possible Enhancements	41
ATTACHMENT A EXAMPLES OF CUSTOMER REPORT CARDS	

SERVICE QUALITY REGULATION OF ELECTRIC AND
GAS UTILITIES IN MASSACHUSETTS—
ASSESSMENT AND RECOMMENDATIONS FOR
POSSIBLE ENHANCEMENTS

INTRODUCTION

This Report was prepared by Energy Advisors, LLC in response to a request of the Office of the Massachusetts Attorney General to undertake an assessment of service quality (“SQ”) regulation of electric and gas utilities in Massachusetts, and to recommend possible enhancements. The Report covers the following areas:

- I. Penalty Provisions
- II. SQ Measures
- III. Regulatory Process for Review of SQ Plans and Reports
- IV. Annual Utility SQ Report Cards
- V. Assuring Data Quality/Integrity And Consistency Among Utilities

With respect to each area, we summarize the *status quo*, identify matters of concern, and present recommendations for possible enhancements. Where possible, we include references to regulations and plans of other jurisdictions that may serve as precedents for the approach we recommend.

In considering these recommendations, it is important to bear in mind how SQ plans fit within the framework of regulation. An SQ plan is a tool for regulators

to use in conjunction with a merger settlement or PBR plan. While the overarching regulatory bargain is struck in the settlement agreement or PBR plan, SQ measures provide specific, short-term targets to measure utility performance against regulator and customer expectations. Within the SQ plan, the metrics selected and defined, the design of the penalty provision, the data gathering and reporting requirements all can be tailored to influence the utility's performance across a variety of categories. Additionally, for customer specific transactions such as billing, meter reading and perhaps complaints, a Service Guarantee program can be effective in compensating individual customers for service quality problems that affect a limited number of identifiable customers.

As a threshold matter, we note that not all Massachusetts SQ plans are governed by the DTE's current guidelines. For example, two operating companies of National Grid, Massachusetts Electric Company and Nantucket Electric Company, have plans that fall under different criteria because authority for those plans arose separately out of a merger proceeding.¹ As noted below, several aspects of those two plans represent improvements over the current guidelines, and may serve as a model for changes in those regulations.

SQ plans set up under the DTE guidelines had an initial term of three years, expiring at the end of 2004. Following that term, the DTE plans to review the guidelines in light of the experience to date, and require new plans. The DTE has reserved to itself the right to re-examine plans (such as those of the Grid companies) arising from other sources of authority at that time. That review and re-examination should provide an opportunity to raise issues and make suggestions for change along the lines proposed in this memorandum.

¹ See D.T.E. 01-71B, Investigation by the Department of Telecommunications and Energy on its own motion, pursuant to G.L. c. 164, §§ 1E, 76 and 93, into Massachusetts Electric Company's and Nantucket Electric Company's service quality filings, including but not limited to, their service quality filings submitted in response to Service Quality Standards for Electric Distribution Companies and Local Gas Distribution Companies, D.T.E. 99-84 (March 22, 2002), p. 21.

I. PENALTY PROVISIONS

A. Status Quo

The broad parameters for assessing penalties associated with poor service quality are set forth in General Laws c. 164, § 1E(c) as follows:

The department shall be authorized to levy a penalty against any distribution, transmission, or gas company which fails to meet the service quality standards in an amount up to and including the equivalent of 2 per cent of such company's transmission and distribution service revenues for the previous calendar year.

In its June 29, 2001 Order in Docket No. 99-84, the DTE adopted a proposal to implement this authority which it described as

a penalty formula using a performance deadband based on a standard deviation ("standard deviation approach"), to offset the effects of random statistical variations in performance. [The proposal also included] a non-linear penalty mechanism, in which the revenue penalty is applied in a parabolic relationship to the variation from the average historical performance for a particular SQ measure, such that the maximum revenue penalty permitted under G.L. c. 164, § 1E(c) would be incurred at a SQ level equal to two standard deviations from the historical performance for that category.

In practical terms, this means that penalties are only assigned for performance in excess of one standard deviation from the historical average performance (*i.e.*, the deadband) for particular benchmarks, on the theory that performance within one standard deviation is essentially random. Penalties are assessed at the maximum level for performance that falls two standard deviations or more from the benchmark.² Historical average performance figures

² While the DTE guidelines do not so specify, the utility plans adopted under those guidelines also include a provision stating that "if the Company's annual performance for a performance measure

were fixed for the three-year duration of the utilities' plans, except where updating was necessary to include a minimum of three years' data in the average. The DTE also permitted utilities to offset penalties for performance over one standard deviation worse than the historical average with credits for performance over one standard deviation better than that average. It also reduced penalties by the amount paid out to customers under the utilities' service guarantee programs.

The actual penalty formula is:

$$\text{Penalty}_M = \left[0.25 * \frac{(\text{Observed Result} - \text{Historical Average Result})^2}{\text{Standard Deviation}} \right] * \text{maximum penalty}$$

Where:

(Observed Result- Historical Average Result) represents performance that is more than one standard deviation better than the benchmark, and is capped at two standard deviations from the benchmark;

Penalty_M = revenue penalty applied to SQ measure M;

Observed Result = the average actual performance measure achieved in year_y;

Historical Average Result = the average historical actual result, based on an arithmetic average of the previous year_y, rounded to two decimal places;

Standard Deviation = standard deviation of the historical average result; and

exceeds two standard deviations above the benchmark in any year, then the Department may open a formal investigation as to the reasons for the Company's poor performance." See, e.g., NSTAR Gas Company Service Quality Plan, filed January 2, 2002, p. 4.

Maximum Penalty = the maximum penalty level established for service standard M.

$$\text{Maximum Penalty} = (\text{PCL}_M) * ((\text{AR} * 0.02) - \text{CP})$$

$$\text{Maximum Offset} = (\text{PCL}_M) * ((\text{AR} * 0.02) - \text{CP})$$

Where:

PCL_M = Performance category liability for the measure expressed as a percentage;

AR = Annual Transmission and Distribution Revenues of the Company for the applicable year; and

CP = Customer Payment

The DTE decided to apportion the maximum penalty among service quality indicators as follows:

Safety and Reliability

SAIDI	22.5 percent (electric only)
SAIFI	22.5 percent (electric only)
Class I & II Odor Calls	45 percent (gas only)
Lost Work-Time	
Accident Rate	10 percent

Customer Service and Billing

Telephone Answering Rate	12.5 percent
Service Appointments Met	12.5 percent
On-Cycle Meter Readings	10 percent

Consumer Division Statistics

Consumer Division Cases 5.0 percent

Billing Adjustments 5.0 percent

Service quality indicators not listed in the preceding table were exempted from monetary penalties. For example, while utilities were required to conduct surveys of overall customer satisfaction with their service, and to report the results in their annual SQ filings, they were not penalized for low rates of customer satisfaction. The reasons for these exemptions varied. In the case of customer satisfaction surveys, the DTE concluded that there was insufficient historical data. In other cases, such as capital expenditures, the DTE concluded that, while indicative of utilities' commitment to maintaining service quality, variations could occur from year to year due to extraneous factors.

As already noted, the SQ Plans of the two Grid operating companies are not strictly governed by the DTE's guidelines. One area in which those plans diverge is penalties. There are four elements of this divergence³:

1. The Grid plans replace the "revenue penalties and penalty offsets" structure of the D.T.E. 99-84 Guidelines with "revenue penalties and incentives." Under this proposal, the Company can potentially earn revenue incentives that can exceed rather than just offset penalties, if its annual performance is better than past performance. The award of incentives is conditioned upon the Company's average distribution rate remaining below the state-wide weighted average distribution rate.
2. Unlike the DTE Guidelines, which use fixed performance measures, the Grid plans use a rolling average to update the historic benchmarks for each

³ The description of the plan differences comes from the March 22, 2002 Order in D.T.E. 01-71B (fn. 1, supra), at pp. 10-11. The Grid plans also differ from plans that come under the current DTE regulations in that they remain in effect up to 2009, whereas the latter are scheduled to expire in 2005 (although the Grid plans are also subject to review and revision in 2005).

performance measure each year. However, the floor benchmarks that trigger penalties do not change.

3. The Grid plans double the penalty provision for poor reliability if the penalty for SAIDI or SAIFI performance equals the maximum penalty for such measures for three consecutive years. If this occurs, the maximum penalty for the third year will be doubled and will remain doubled until performance improves.

4. Unlike the DTE 99-84 Guidelines, under the Grid Plans the maximum penalty amount is not reduced by any service guarantee payments (customer payments).

B. Concerns and Possible Enhancements

1. Use of Company-Specific Historical Averages as Benchmarks.

A concern with using company-specific historical average performance as a benchmark for assessing penalties is the inherent assumption that historical average performance was satisfactory. If a utility has consistently provided poor service, it will be able to avoid performance penalties merely by continuing at that unsatisfactory level.

In the proceedings leading to the adoption of the current guidelines, several parties (including the Attorney General) attempted to overcome this problem by advocating adoption of benchmarks based on state, region or industry-wide data. On the other hand, at least one utility defended the use of company-specific historic data on the ground that a primary purpose of service quality regulation was to prevent “degradation of service power quality, or safety due to changes in regulatory oversight and implementation of plans that are no

longer cost-based.”⁴ Utilities generally opposed use of state, regional or industry-wide data on the ground that differences in service territory characteristics made comparisons of utility performance unfair.⁵

The DTE acknowledged the concern with using company-specific historic data, but concluded that questions as to data availability and comparability precluded adoption of broader benchmarks. However, the DTE stated that it

remain[ed] committed to examining the potential use of nationwide, regionwide, or statewide data. Use of such data may allow the Department and other parties the ability to gauge service quality on a cross-company, comparative basis. Such a comparison may allow the Department to ascertain if service levels being provided in the Commonwealth are comparable to those found in other areas of New England and other regions of the country.⁶

Accordingly, the DTE directed the utilities to file reports addressing the use of broader data, within 18 months of the date of its order. In response, the Massachusetts utilities commissioned a study by Navigant Consulting, a summary of which was filed in December 2002.⁷ Navigant concluded that while broader benchmarking “may be useful for market positioning or motivational purposes⁸,” that kind of benchmark still posed risks due to issues of comparability:

⁴ See D.T.E. 99-84, Investigation by the Department of Telecommunications and Energy on its own Motion to Establish Guidelines for Service Quality Standards for Electric Distribution Companies and Local Gas Distribution Companies Pursuant to G.L. c. 164, § 1E (August 17, 2000), p. 5.

⁵ Ibid.

⁶ See June 29, 2001 Order in D.T.E. 99-84, p. 7.

⁷ Navigant Consulting, Inc., “Summary of Findings Related to Service-Quality Benchmarking Efforts” (December 19, 2002), published at <http://www.state.ma.us/dpu/electric/99-84/1219sqgui.pdf>

⁸ Id., p. 13.

....several states employ reporting and service-quality requirements that are similar to those specified in DTE 99-84. Further, utilities, state and federal agencies and other entities often conduct benchmarking studies for a range of purposes, including data collection methods and reporting. The differences in definitions, data collection methods and data quality, geography, and distribution system design and configuration, however, each undermines the likelihood that such data would meet the rigorous standards needed to support use of *service-quality* benchmark data at this time. Many state and federal commissions recognize these limitations and the inherent differences among utilities and therefore have declined to adopt national standards, regional standards or standards developed in other states as a benchmark. The industry is now adopting more consistent reporting and sophisticated data collection methods, which will improve the accuracy of reported data over time. Nevertheless, NCI advises [sic] caution regarding the use of non-company specific data for establishing service-quality standards. Attempts at this time to establish regional or national benchmarking efforts could produce questionable results due to differences in data quality, collection methods, system design, construction, geography and weather.⁹

As a practical matter, it may make sense to distinguish among service quality measures in considering whether to use broader, non-company specific benchmarks. For instance, call center answering, bill adjustments, complaint rates, customer satisfaction surveys and safety standards may lend themselves to state wide or national benchmarks, while SAIDI, SAIFI (operating performance standards) are more individualized due to operating conditions and issues specific to a utility's service territory.

The lack of data to support broader than company-specific benchmarks may continue to be a problem. However, there is an approach that may overcome some of the weaknesses in the DTE's current guidelines.

⁹ Id., p. 25.

The approach has its roots in the concept of “continuous improvement”. Under this concept, often traced to the Japanese Kaizen (or quality) Movement, businesses commit themselves to strive for improvements in their work processes, with resulting improved services and products for their customers. The concept is now deeply engrained in the American marketplace, and public companies routinely advertise their commitment to continuous improvement, or some variation thereof, in their annual reports, websites and other public relations materials. The Massachusetts utilities themselves have embraced the concept in various contexts.¹⁰ Given that the efficiencies of competitive markets typically serve as the model for regulation, it is entirely appropriate to apply the principle of continuous improvement to utility service quality regulation.

To be sure, utilities have an incentive to resist measures that increase their exposure to penalties, and are unlikely to be enthusiastic about performance benchmarks that become more stringent with the passage of time. One possible argument to anticipate is that regulation already incorporates penalties for failure to make continuous improvements, through productivity offsets built into rate indexing plans. The counter-argument would be that productivity adjustments reflect the assumption that utilities will produce the

¹⁰ A brief internet search found recent instances in which each of the major Massachusetts utilities applied the principle of continuous improvement to its own operations. See http://www.nu.com/environmental/env_mgmt.asp (“In conducting our business, we [at NU] will...ensure accountability, openness and responsiveness to our customers, employees, shareholders and the public by establishing specific objectives and measurable targets that promote continuous improvement and by reporting our environmental performance”); http://www.nationalgridus.com/commitment/d3-10_vision.asp (“Guiding Principles: Every [National Grid] Employee will ... help create a company culture that sustains our commitment to safety and health, and that fosters continuous improvement in safety performance”); <http://www.pbviews.com/news/selected.asp?prID=77> (“Panorama Business Views, the global leader in Performance Management solutions, would like to congratulate NSTAR Electric & Gas Corporation on its continuous performance improvement efforts ... ‘NSTAR manages within a performance culture where we rely on fact-based decision making’, said Susan McSherry, Director, Corporate Performance Management, at NSTAR. ‘Our ability to see how we are performing against key performance indicators and how performance in one area impacts that of another area allows us to quickly refocus our resources as needed to stay on course and to plan with more confidence future improvements in financial, customer and operational business areas’”).

same amount of service with fewer resources (e.g., employees), whereas raising performance benchmarks is intended to mimic the tendency of competitive firms to provide better service or improved products over time. Customers should share in the benefits of improved performance associated with advances in technology or improved work processes that will often improve service levels and/or lower costs during the term of a service quality program.

Assuming the principle of raising performance benchmarks is accepted, the question remains of what rate of change is reasonable. If there has been a positive trend in a utility's historical performance, that may serve as an indicator of the rate of change that may be reasonably expected in the future. Indeed, that concept appears to underlie the claim of Massachusetts Electric Company that its use of a rolling average of historical data to establish performance benchmarks represents an improvement (from customers' perspective) over the approach built into existing DTE regulation of using a fixed benchmark over the plan period.¹¹ On the other hand, unless a common rate of change is applied to the benchmarks of all utilities, opponents of this approach will likely argue that it penalizes those who have already made the most improvement.

Alternative bases for selecting a rate for raising the benchmark might include the regulators' judgment, input from the utilities themselves as well as other participants in the regulatory process, or the rate used in the productivity offset. While none of these bases is unassailable, they may produce an intuitively reasonable result. Regardless of the approach used, however, utilities may fairly argue that there should ultimately be some limit to changes in the benchmarks. No utility is likely to operate with zero outages or zero customer complaints, nor would it be sensible to set that high a benchmark. At some point there will be diminishing returns from additional investments in service quality. Whatever the method chosen for raising benchmarks, utilities should be afforded the opportunity to argue that that point has been reached.

¹¹ See D.T.E. 01-71B, *supra* n. 1, p. 10.

Ideally, benchmarks should reflect customers' reasonable expectations. For example, customers may be satisfied with being able to talk to a customer representative on the telephone within 30 seconds 90 percent of the time. If so, a utility that invests heavily to answer in 10 seconds 95 percent of the time may simply be wasting customer money. Accordingly, where possible utilities and regulators should consider customer expectations, developed through surveys, focus groups or otherwise, in determining the appropriate level for particular benchmarks.

An example of a SQ plan under which the utility may be excused from penalties that would otherwise apply is the Rochester Gas & Electric plan that was in effect from 1997 through 2002.¹² RG&E was given the right to obtain a waiver of penalties resulting from below-target performance for calls answered within 30 seconds, bills adjusted and PSC complaints if it could demonstrate that:

- a. performance below the target level resulted from circumstances beyond the Company's control;
- b. performance below the target resulted from actions taken to improve long-term performance in that measure of customer service;
- c. performance below the target level resulted from actions taken to improve short- or long-term performance in another aspect of customer service; and
- d. performance below the target level resulted from the implementation of competition.

Finally, if the DTE were to consider raising company-specific benchmarks under a "continuing improvement" philosophy, an issue would remain as to the application of the one standard deviation "deadband," designed to excuse utilities

¹² The plan is published at <http://www.rge.com/agreement.html>.

from penalties for random variations in performance. If benchmarks are no longer tied directly to historical data, there will not be a basis to calculate a standard deviation. Depending upon the final approach selected, an appropriate method can be developed by the parties to provide an acceptable range of performance similar to the standard deviation approach.

2. The Maximum Penalty Exposure

Determining the appropriate level of maximum penalties requires balancing the competing interests of making the figures large enough to induce management action and not being disproportionate to the performance failure in question or overly damaging to the utility's financial health. The levels chosen are often arrived at through settlement, and we are not aware of any jurisdiction which claims to have used a wholly objective approach to setting the level. In practice, states often start out relatively small and symbolic and move to higher penalty amounts when degradation occurs. Massachusetts appears to be unique in setting the level in statute. (The DTE had the discretion to adopt a lower level, but chose not to.¹³) Based on our limited review, the statutory maximum of two percent of T&D revenue appears to be within the range of many states' SQ programs.

An example of regulators increasing penalty exposure as service degradation occurred is the case of Ameritech. Following its merger with SBC Communications, Ameritech's local operating companies, which were already under SQ plans, paid millions of dollars in penalties to their customers as a result of service quality failures. Nonetheless, service remained poor. The state regulators of five states held a prominently publicized summit and initiated a new round of rulemakings, increased penalty orders, and investigations.

¹³ See August 17, 2000 Order in D.T.E. 99-84, p. 26.

Improvement was soon noticed.¹⁴ New York experienced a similar sequence of events in 1993-94 involving the NYNEX and Verizon telephone companies.¹⁵

Because the overall maximum penalty exposure in Massachusetts is set by statute, obviously any increase in that maximum would require legislative action. Absent evidence that imposing penalties at the existing maximum is failing to result in adequate service, securing a change in the law would probably be difficult. If an opportunity for legislative action does arise, however, one line of argument in favor of raising the maximum might be to compare the current limit to utility earnings. Because the limit is stated in terms of T&D revenue, the impact on earnings will vary among companies. A rough calculation for NSTAR suggests that its current maximum equates to about one percent on ROE, *e.g.*, imposition of the maximum penalty in 2003 would have reduced NSTAR's ROE from about 13 percent to about 12 percent. This is arguably small relative to the likely impact of poor performance on a non-regulated company. In competitive markets, it is difficult to imagine firms that provide poor service suffering that small an effect on their earnings.¹⁶

¹⁴ See The Indianapolis Star, "Ameritech Service Complaints" (December 5, 2001), published at <http://www.indystar.com/library/factfiles/business/utilities/ameritech/service.html>.

¹⁵ See [http://www3.dps.state.ny.us/pscweb/WebFileRoom.nsf/Web/F6F64BB1C7D4DC3085256E990060BC75/\\$File/pr04037.pdf?OpenElement](http://www3.dps.state.ny.us/pscweb/WebFileRoom.nsf/Web/F6F64BB1C7D4DC3085256E990060BC75/$File/pr04037.pdf?OpenElement).

¹⁶ See Jones, Thomas O. and W. Earl Sasser, Jr., "Why Satisfied Customers Defect," Harvard Business Review (Nov-Dec 1995), pp. 88-99.

3. The Dilutive Effect of Apportioning Maximum Penalty Exposure Over Several Performance Standards

Whatever the approach taken to setting the maximum penalty amount, there is a risk that the desired impact of the maximum penalty will be diluted through its apportionment to several performance standards.

The dilutive effect can be seen in the context of the Massachusetts plans. For example, in the case of Boston Edison, the maximum penalty (two percent of T&D revenue) is about \$12.5 million. However, spread over the eight plan performance criteria, the exposure for poor performance on individual standards ranges from about \$626,000 (for consumer division cases and billing adjustments) to about \$2.8 million (for SAIDI and SAIFI). At those levels, the incentive for management to make the investments needed to avoid penalties is less clear, particularly given the availability of penalty offsets (discussed below).

The Massachusetts approach seeks to address the dilution effect to some extent by having penalties “ramp up” quickly—the penalty for each benchmark increases from zero at one standard deviation from the historical average to the full amount at two standard deviations. Nonetheless, the full amount in that context is only a fraction of the utility’s overall maximum penalty exposure.

Vermont takes a more exacting approach. Under a plan for Central Vermont Public Service Company¹⁷, Vermont calculates penalties through “service compensation points.” When performance meets the baseline, no points are incurred. If performance is below the baseline, points are assessed based on the percentage of deterioration over the annual period that has occurred. Dollars are then assigned to the points based on a sliding scale so that the higher the level of deterioration, the higher dollar amount assigned to the points.

¹⁷ Published at <http://www.state.vt.us/psd/Menu/SQRP/CVPSSuccessorfinal-w-attachments.pdf>.

Under this approach, the points accumulate among the various service quality performance areas so that a modest amount of deterioration in 2-3 areas adds up to about the same as a significant deterioration in only one area. While this approach does not eliminate dilution altogether, it does reduce it.

Yet another approach is to un-cap penalties associated with individual performance standards. In this manner, assuming an overall maximum remained in place, especially poor service in one performance area could result in a larger penalty, so long as the total penalties assessed for all areas did not exceed the maximum. (If the overall maximum was reached, penalties for individual areas could be scaled back *pro rata*, or on some other pre-determined basis.) The current Grid plans take a significant step in this direction. As noted earlier, under these plans, if the penalty for SAIDI or SAIFI performance equals the maximum penalty for such measures for three consecutive years, the maximum penalty for the third year will be doubled and will remain doubled until performance improves. This can result in penalties that exceed otherwise applicable caps.

4. The Effect of Allowing Penalty Offsets or Rewards

The issue of whether utilities should be allowed to offset their potential penalties for poor performance in one or more areas by superior performance in others, or simply have the opportunity for rewards for superior service regardless of the need to offset penalties, was debated in the original SQ proceedings.¹⁸ The DTE rejected utility arguments that offsets or rewards were necessary to provide symmetry, in part based on its conclusion that it lacked authority under the governing statute to order rewards. However, the DTE did determine that offsets were a legitimate means to mitigate the risks that utilities would be penalized for random variations in performance.

¹⁸ See August 17, 2000 Order in D.T.E. 99-84, p. 26; June 29, 2001 Order in D.T.E. 99-84, p. 31.

In addition to offsets for superior performance, the DTE allows utilities to reduce otherwise applicable penalties by amounts paid to customers under service guarantee programs. This has had almost no practical effect, however, as service guarantee payments have been *de minimis*.

As noted above, the Grid plans were reviewed under the DTE's merger authority, and therefore were not subject to the same statutory constraints as other utilities' plans. The Grid plans do allow rewards, without regard to whether there are penalties to be offset; however, to qualify for such rewards, the Grid operating companies' rates had to be below the state-wide average. In addition, Grid accepted higher penalty exposures and other quid-pro-quos in return for its upside opportunities.¹⁹

While Massachusetts is not alone in allowing offsets, they are not permitted in all jurisdictions. Jurisdictions that preclude offsets for some or all utilities include Maine, Washington and Vermont. While the reasons for precluding offsets are not always explicit, a common argument against offsets is that utility customers should not be expected to accept substandard performance in some areas simply because their utility performs exceptionally elsewhere. For example, customers facing excessive numbers of outages would take little comfort from the fact that their utility does an excellent job of reading meters or issuing accurate bills. This is particularly true given that utility rates are supposedly set high enough to cover the full cost of providing adequate service.

Customer expectations bear on the issue of offsets in another way as well. As noted earlier, while customers expect good performance, they generally do not expect it to be perfect, and may prefer lower rates to higher service levels. Allowing utilities the opportunity to earn offsets for levels of performance that customers do not want may result in a misallocation of resources.

¹⁹ Jurisdictions that have considered and rejected rewards include Maine, Colorado and Washington.

In practice, offsets have relieved Massachusetts of penalties for poor performance under existing plans. For example, for the 12 months ending August 2001, Boston Edison failed to meet its performance goals for three measures (on-cycle meter reads, SAIDI, and SAIFI), which would have resulted in a penalty of \$3,794,200. However, by exceeding a performance benchmark for billing adjustments, the company had its penalty reduced by \$587,059.²⁰

There are several possible ways that the problem associated with offsets could be addressed. The simplest approach is to eliminate them entirely, consistent with the approach of Maine, Washington and Vermont. Short of wholesale elimination, the ill-effects of offsets could be mitigated by limiting the availability of offsets to closely related performance measures, *e.g.*, superior performance on SAIDI could be used only to offset poor performance in SAIFI. Another alternative would be to permit “banking” of a penalty for a year or two, and permit offsets only if there is above-benchmark performance in a subsequent year on the same quality standard. This alternative may require a statutory amendment, however, as the DTE has ruled that current law requires tying penalties and performance to the same “previous calendar year.”²¹

²⁰ D.T.E. 01-71A, Investigation by the Department of Telecommunications and Energy on its own motion, pursuant to G.L. c. 164, §§ 1E, 76 and 93, into Boston Edison Company’s, Commonwealth Electric Company’s and Cambridge Electric Light Company’s d/b/a NSTAR Electric, service quality filings, including but not limited to, their service quality filings submitted in response to Service Quality Standards for Electric Distribution Companies and Local Gas Distribution Companies, D.T.E. 99-84 (March 22, 2002), p. 14.

²¹ Order on Motion for Clarification by Joint Utilities in D.T.E. 99-84 (September 28, 2001), pp. 4-5.

II. SQ MEASURES

A. Status Quo

As noted in the introduction, in addition to reporting requirements not associated with prescribed performance penalties, the DTE guidelines provide for electric utilities to track eight measures, and gas utilities seven. They can be grouped into four categories: service reliability; safety; customer service and billing; and customer satisfaction. Service reliability measures include SAIDI and SAIFI (for electric utilities); safety measures include Class I & II Odor Calls (for gas companies) and lost work-time accidents; customer service and billing includes telephone answering rate, service appointments met, on-cycle meter readings and billing adjustments; and customer satisfaction includes consumer division cases.

B. Concerns and Possible Enhancements

Our review of SQ programs from other jurisdictions revealed nothing to suggest that these measures are inappropriate or out-dated.²² While there are some variations among jurisdictions, these are fairly common elements of SQ programs. In addition, we are not aware of any information suggesting that these measures do not relate to actual service concerns of Massachusetts utility customers. However, experience in other jurisdictions suggests that some minor refinements to the list may be desirable.

²² The DTE originally proposed a telephone answering standard of 20 seconds, *i.e.*, poor performance was defined as calls that are not answered by a human voice by the company's employee, contractor, or agent (and not by a recorded message) within 20 seconds. Attachment A to June 29, 2001 Order in DTE 99-84, p. 3. In the case of utilities that had historically compiled telephone answering performance on a 30-second standard, the DTE allowed use of that standard to determine adequacy of performance, but directed the utilities to begin compiling performance under a 20-second standard. After five years of data have been accumulated, the utilities' telephone answering performance will be judged on the 20-second standard. See, *e.g.*, NSTAR Gas Company Service Quality Plan filed in D.T.E. 99-84/01-71 (January 25, 2002), p. 3.

First, bearing in mind that fewer standards translates to higher penalty exposures for performance on individual measures, it is worth inquiring whether the overall effectiveness of the Massachusetts program would be enhanced by eliminating low priority standards. In that regard, it is our experience that service quality issues with on-cycle meter reading and billing adjustments are rare, and their impact on customers is minimal by comparison with matters covered by other standards. Together, they account for 15 percent of the penalty exposure to utilities under the DTE's weighting formula. By eliminating them from the penalty calculation, that level of exposure could be reallocated to other standards. At the same time, the utilities could be required to continue reporting performance data on these issues, so that performance can still be monitored.

On the other hand, there are several standards that have proven useful in other jurisdictions or otherwise may be worthy of consideration within the context of a new or reconstructed SQ plan. As noted above, selecting the most meaningful measures is important to induce the desired performance, and while there are many indicators that are interesting and possible to measure, targeting the "right" ones is more important. Included in this category are:

- Customer satisfaction as measured by customer surveys. The DTE guidelines indicate that this measure should be tracked, but there is no associated penalty exposure, apparently because little if any historical data was available when the guidelines were enacted. Other states assign penalty exposure to this measure²³, and with the passage of time there is now historical data from which performance trends can be tracked. It is also worth noting that many utilities track this measure for internal purposes, regardless of whether it is included in regulatory SQ plans.

²³ See, e.g., SQ Plan of Puget Sound Energy, approved by Washington Utilities and Transportation Commission in Docket No. UE-011570 et al. (June 20, 2002).

- Poor performing circuits. The DTE guidelines also call for tracking of information relating to this item. While some parties to the original Docket 99-84 proceeding advocated assigning a penalty to this item, the DTE was reluctant to do so based on the lack of historical data on which to establish a benchmark.²⁴ However, the DTE was not persuaded by utility arguments that the extent of poor performing circuits would be adequately captured by SAIDI. The issue as to availability of data should be diminishing in importance with the passage of time. In addition, penalties need not be tied to historical performance. The DTE could reasonably conclude, for example, that no circuit should remain on the “poor performing” list for greater than one year, absent a compelling demonstration by the utility that all reasonable actions have been taken to remedy the problem. Penalties could be assigned based on the number of circuits that continue to be poor performing for more than one year.

- Busy-out Calls. As noted above, the DTE selected a 20-second standard for determining adequacy of telephone answering performance. Under this standard, service is considered poor if more than 20 seconds elapse from the time a customer makes a service selection on the phone until the call is responded to by the service area selected. While this is identical or similar to telephone answering standards in many other jurisdictions, it does not address so-called “busy-out calls”, which are calls in which the customer receives a busy signal. Some utilities have been found (outside of Massachusetts) to allow more customers to receive busy signals, in order to record a more timely response rate for calls that get through.²⁵ Because busy signals are often as much or more a source of frustration than delays once a call is answered, this measure may be worth incorporating into utilities’ SQ plans.²⁶ This measure may lend itself to statewide or regional benchmarking.

²⁴ August 17, 2000 Order in D.T.E. 99-84, p. 25.

²⁵ Personal observations of Energy Advisors associate.

²⁶ This measure does not appear to have been proposed to the DTE in Docket No. 99-84. The only telephone answering measure proposed was the 20-second standard. The DTE based its

- Momentary Outages. Several non-utility parties, including the Attorney General, proposed a performance standard for momentary outages in Docket No. 99-84. While utilities objected to the expense and practicality of collecting the necessary data, there does not appear to have been any dispute that momentary interruptions are a major source of inconvenience to customers, especially given the increased use of electronic devices. Ultimately, the DTE declined to adopt a momentary average interruption frequency index (“MAIFI”) standard due to lack of existing data.²⁷ Given that the importance of the issue has never been in dispute, it may now be appropriate to ask the DTE to revisit this issue.

- Property Damage. The DTE’s current guidelines provide for reporting of instances of damage to company property in excess of \$50,000. Utility reports have disclosed few such instances. An alternative measure that might better reflect service quality, and would be of greater concern to customers, is damages to customer property or property of third parties. Data on this measure should be readily available from utilities.

It is important to find the correct balance between performance areas to be monitored for penalties and those subject only to informational filings. The list of SQ measures and reporting requirements then need to be considered in the context of the final penalty and offset provisions adopted.

decision to adopt that standard on the fact that utilities were already familiar with it, and it was widely supported by parties to the proceeding. August 17, 2000 Order in D.T.E. 99-84, p. 8.

²⁷ August 17, 2000 Order in D.T.E. 99-84, pp. 17-18.

III. REGULATORY PROCESS FOR REVIEW OF SQ PLANS AND REPORTS

A. Status Quo

In establishing its current regulations and guidelines for SQ plans, the DTE set in motion a schedule and procedures for periodic review of the plans as well as the reports filed under those plans. Plans were to be filed annually, and would be subject to DTE review, and the overall program was to be re-examined after three years. The DTE was mindful that there was much to be learned, and that that learning could form the basis to improve the guidelines and plans:

The Department notes that experience will be a tool in monitoring and evaluating the SQ guidelines stated in this Order. Further, the Department anticipates that the value of experience will be most appreciable in the years immediately subsequent to the issuance of this Order. Therefore, the Department directs all gas and electric distribution companies to define the term of their SQ proposal as three years. At that time, the Department may review the SQ guidelines as applied to the gas and electric distribution companies as a group and individually.²⁸

The DTE guidelines also specified that the Department would open a formal investigation of a utility's poor performance in the event reported performance exceeded two standard deviations from a service quality benchmark.²⁹ For reasons that are not readily apparent, actual plans approved by the DTE provide only that the Department "may" open formal investigations in those instances.³⁰ As a practical matter, the Department has not had occasion to act under that provision, although it did use its general supervisory authority to

²⁸ June 29, 2001 Order in D.T.E. 99-84, p. 42.

²⁹ Attachment 1 to June 29, 2001 Order in D.T.E. 99-84, p. 10.

³⁰ See, e.g., NSTAR Gas Company Service Quality Plan, filed in D.T.E. 99-84/01-71 (January 25, 2002), p. 6.

open a formal investigation of NSTAR Electric following major service outages in Boston in the summer of 2001.³¹

As noted above, the SQ plans for some utilities, including the Grid operating companies, were put in place under separate authority, and the Grid plans had terms extending to 2009. Just the same, the DTE anticipated that its process for reviewing its general SQ guidelines after the initial three year period might suggest improvements for the other plans as well, and included provisions in those plans allowing them to be revised at that time.³²

While the original orders in Docket No. 99-84 did not spell out the extent of the review of annual SQ reports (other than in instances of especially poor performance, as noted above), with two years of experience the DTE's approach appears to be to conduct very limited review. The reports are assigned docket numbers, and DTE hearing examiners engage in very limited discovery to clarify issues apparent from the face of the reports. The DTE has rejected efforts by the Attorney General to open more extensive investigations, permit third party discovery, or conduct hearings.

B. Concerns and Possible Enhancements

As noted elsewhere in this memorandum, even very careful attention to plan design can not eliminate the possibility that data will be misreported, and that plans will fail for that or other reasons to achieve their intended results. The DTE acknowledged almost as much when it noted the likely value of experience in the initial implementation period, and called for review of the guidelines after three years. The Attorney General's awareness of this problem led to its efforts

³¹ See D.T.E. 01-65, Investigation by the Department of Telecommunications and Energy on its Own Motion into the Service Quality of Boston Edison Company Commonwealth Electric Company and Cambridge Electric Light Company, d/b/a NSTAR Electric, Final Order (March 22, 2002).

³² See, e.g., id., p. 41; D.T.E. 01-71B, p. 15.

(albeit rebuffed by the DTE) to undertake more searching inquiries into the annual reports, and is a major impetus for commissioning this research.

It goes almost without saying that the strongest case to motivate the legislature to require an SQ investigation, or the DTE to launch one of its own accord, is where there is a triggering event associated with higher risk of diminished service quality. The most common triggers are the institution of a rate cap or rate index plan, mergers, unusual service problems, or some combination thereof. The institution of a rate cap or rate index plan creates incentives for utilities to reduce expenditures on maintaining service quality, since the cap or plan reduces the risk that the utility will be forced to return excess earnings to customers through reduced rates.³³ Similarly, mergers create concerns over diminished service quality, since acquiring companies normally expect to justify their acquisition premiums at least in part through reducing costs of the target company.³⁴ Unusual service problems, such as repeated or extended outages, naturally suggest utility management shortcomings, in the absence of an act of nature such as a hurricane or blizzard.

The DTE has initiated SQ investigations in all of these circumstances. The final order in Docket No. 99-84 (at pp. 41-42) cites several cases where rate caps agreed to in connection with mergers led to requirements for SQ plans. We have already noted the decision of the DTE to launch an investigation following extensive outages in NSTAR's service territory in 2001, as well as the provision

³³ See D.P.U. 94-158, Incentive Ratemaking (1995), pp. 59-60.

³⁴ See, e.g., Colorado PUC Docket No. 99a-377eg, In The Matter Of The Application Of Public Service Company Of Colorado For Commission Authorization For New Century Energies, Inc. To Merge With Northern States Power Company; For Extension Of The Current Regulatory Plan Which Includes An Earnings Sharing Mechanism; And For Such Other Relief As May Be Appropriate Or Necessary, Decision Granting Application (February 16, 2000), ¶ 1(h) ("Public Service's agreement to continue the standards for measuring the quality of its electric services and to increase the bill credits imposed if those standards are not met will help ensure that the merged Company does not pursue cost savings at the expense of the quality of service provided to Colorado's consumers").

incorporated in the Docket No. 99-84 guidelines for investigations to be undertaken where service quality falls significantly short of a benchmark.

Without a triggering event such as those discussed above, the strongest argument for a change in legislation or regulatory policy supportive of permitting more thorough investigations, discovery and hearings into data quality issues is simply to point out the ratepayer risks associated with the use of faulty data. Evidence of problems that have arisen in other jurisdictions with respect to data quality, discussed in Section V of this memorandum, should support the case.

There is a provision in existing law requiring the DTE to conduct hearings in response to written complaints by the Attorney General, groups of 20 or more customers, or local political officials concerning utility service or prices. Gen. Laws c. 164, Sec. 93 provides, in pertinent part:

On written complaint of the attorney general, of the mayor of a city or the selectmen of a town where a gas or electric company is operated, or of twenty customers thereof, either as to the quality or price of the gas or electricity sold and delivered, the department shall notify said company by leaving at its office a copy of such complaint, and shall thereupon, after notice, give a public hearing to such complainant and said company, and after such hearing may order any reduction or change in the price or prices of gas or electricity or an improvement in the quality thereof, and a report of such proceedings and the result thereof shall be included in the report required by section seventy-seven. Such an order may likewise be made by the department, after notice and hearing as aforesaid, upon its own motion...

As a practical matter, however, this authority has limited value to the Attorney General in raising service quality concerns, since the DTE imposes the burden of proof on the Attorney General and does not necessarily allow discovery, even though the utilities have vastly more information at their disposal.

There is also authority in the Massachusetts Administrative Procedures Act for judicial review of agency action “unlawfully withheld or unreasonably delayed”.³⁵

The court may affirm the decision of the agency, or remand the matter for further proceedings before the agency; or the court may set aside or modify the decision, or compel any action **unlawfully withheld or unreasonably delayed**, if it determines that the substantial rights of any party may have been prejudiced because the agency decision is--

- (a) In violation of constitutional provisions; or
- (b) In excess of the statutory authority or jurisdiction of the agency; or
- (c) Based upon an error of law; or
- (d) Made upon unlawful procedure; or
- (e) Unsupported by substantial evidence; or
- (f) Unwarranted by facts found by the court on the record as submitted or as amplified under paragraph (6) of this section, in those instances where the court is constitutionally required to make independent findings of fact; or
- (g) Arbitrary or capricious, an abuse of discretion, or otherwise not in accordance with law. [Emphasis added.]

However, that authority, and similar provisions in the federal Administrative Procedures Act and laws of other states, is very seldom invoked, and even more rarely invoked successfully. Courts generally accord administrative agencies almost unfettered discretion as to whether and how to conduct investigations within their general subject matter authority.

³⁵ General Laws, c. 30A, Sec. 14 (7). It should be noted that the Attorney General also has the authority under Gen. Laws c. 164, Sec. 93 to institute proceedings before the DTE by filing complaints. However, this authority has limited value, since the DTE imposes the burden of proof on the Attorney General, even though the utilities have vastly more information at their disposal.

While the legislature could prescribe more frequent and more formal investigations, or the DTE could include such prescriptions in its rules, our research has not disclosed many useful examples of other states or agencies doing so in the context of service quality regulation.

As already noted, the DTE has committed to revisiting its SQ guidelines and the utilities' plans after the initial three year implementation period ending in 2004. In that respect, Massachusetts is similar to Maine, which required a "mid-period" review of service quality indicators of a seven year plan for Maine's principal electric utility.³⁶ Vermont is an example where regulators appear to have mandated more frequent reviews. In a recent case involving Central Vermont Public Service Company, the Vermont Board provided for review of the company's SQ plan "after it has been in effect for one year and every two years thereafter to determine the need for any modifications of measurements or performance levels," and authorized parties to petition for modifications of measurements or performance levels "any time during the life of the Plan."³⁷

In a similar vein, Pennsylvania regulators have conducted a review of their own monitoring process for electric distribution reliability, while the state Legislative Budget and Finance Committee conducted a separate study to review the Commission's role in monitoring reliability. These reviews resulted in a number of recommended changes to improve the process used in Pennsylvania.³⁸

³⁶ MPUC Docket No. 99-666, Central Maine Power Company Request for Approval of Alternative Rate Plan (Post-Merger) "ARP2000", Order Approving Stipulation (November 16, 2000).

³⁷ Central Vermont Public Service Corporation's Successor Service Quality & Reliability Performance, Monitoring & Reporting Plan (July 9, 2003), ¶ 4, approved in Vt. DPS Docket No.6865 (October 1, 2003).

³⁸ See Pennsylvania PUC Docket No. M-00991220, Press Release, "PUC Adopts Tighter Reliability Standards for Electric Utilities (May 7, 2004); G. Dorow, "Monitoring of Performance Regulation in Pennsylvania," presentation to Edison Electric Institute Meeting (October 12,

In addition to having discretion to order investigations essentially at any time, the DTE has authority to commission audits of utility performance or records.³⁹ While we have not found instances of states requiring periodic audits of service quality performance or data, they have been prescribed in other contexts where significant ratepayer interests are at stake. For example, New Jersey law requires the state public utilities board to audit the competitive service offerings of its electric utilities at least once every two years.⁴⁰

In sum, there is room for Massachusetts to take a more aggressive approach to auditing or otherwise investigating utility service quality. The policies followed to date have made it difficult for parties to get access to information necessary to determine if performance is being accurately reported and measured.

2003), published at http://www.eei.org/meetings/nonav_meeting_files/nonav_2003-10-12-ec/Dorow.ppt.

³⁹ See Gen. Laws c. 164, Sec. 93; D.T.E. 99-271, Investigation by the Department of Telecommunications and Energy upon its own motion pursuant to Section 271 of the Telecommunications Act of 1996 into the Compliance Filing of Verizon New England Inc. d/b/a Verizon Massachusetts as part of its application to the Federal Communications Commission for entry into the in-region interLATA (long distance) telephone market (September 5, 2000), § V.F.

⁴⁰ New Jersey Statutes, Title 48 Sec. 3-56.

IV. ANNUAL UTILITY SQ REPORT CARDS

A. Status Quo

The DTE's requirements for utilities to file reports of their performance and policies relating to service quality are fairly extensive. In brief:⁴¹

- Each utility must report to the DTE SAIDI, SAIFI, CAIDI, Lost Work Time Accident Rate, Electric Distribution Line Loss, Unaccounted-for Gas, Restricted Work Day Rate, and damage to company property, and percentage of all Class I and Class II odor calls responded in one hour or less.
- Each electric distribution company must report SAIDI, SAIFI, and Lost Work Time Accident Rate data from the past ten years, and must use its best efforts to standardize SAIDI and SAIFI historical data.
- Each electric distribution company must report the outages that are considered Excludable Major Events (*i.e.*, outages which, due to their source or characteristics are not required to be included in SAIFI or SAIDI calculations). For each such event, the company must report the total number of customers affected, the service area affected, the number of customers without service at periodic intervals, the time frame of longest customer interruption, and the number of crews used to restore service on a per shift basis.
- Each electric distribution company must report its policy on tree trimming, including its tree trimming cycle, inspection procedures, and typical minimum vegetation clearance requirement from electric lines.
- Each Company must report the capital investment approved and capital investment completed in the company's transmission and distribution infrastructure to ensure delivery of reliable electricity and gas. This report must include a list of major

⁴¹ Unless otherwise indicated, this information must be filed with the DTE annually. Issues relating to the quality and consistency of the data provided in these reports are discussed in Section V of this memorandum.

capital investment projects that relate to maintain transmission and distribution reliability and a summary description of each project. The summary must include a list and location of each transmission and distribution facility that was modified, upgraded, replaced, and/or constructed as well as the costs and scope of work involved in the facility modification, upgrade, replacement, and/or construction. Each Company must report the same capital expenditure data from the ten most recent years.

- Each Company must report its policy for identifying, acquiring, and stocking critical spare components for its distribution and transmission system. Each Company's first annual report must address how this policy has changed or evolved over the past 10 years.

- Each Company must report its poor performing circuits, including the following information:

- (1) the feeder or circuit identification number;
- (2) the feeder or circuit location;
- (3) the reason(s) why the circuits performed poorly during the reporting year;
- (4) the number of years that the circuit(s) performed poorly;
- (5) the steps that are being considered and/or have been implemented to improve the reliability of these circuits; and
- (6) the SAIDI or SAIFI value for the specific circuit(s).

- Each electric distribution company must continue to report the distribution and transmission outages consistent with the Department's Outage and Accident Reporting Procedures.

- Each electric distribution company must report every distribution and transmission outage that occurs within or impacts its service territory. Each electric distribution company must report to the Department, within a one-hour period from the beginning of the outage, every outage that results in 5,000 or more customer outage hours or that results in a service interruption to a high-profile customer. (These reports must be revised to reflect updated information about the outage.) All other outages must be reported to the Department within a 24-hour period from the beginning of the outage.

These reports must include the following information:

- (1) date of the outage;
 - (2) location of the outage (by providing town and street(s) location);
 - (3) nature or cause of the outage;
 - (4) number of customers affected;
 - (5) time outage commenced and time service was/will be restored;
 - (6) duration of the outage;
 - (7) number of customer outage hours;
 - (8) feeder or circuit number;
 - (9) district or division where outage occurred;
 - (10) identification of overhead or underground line where fault or outage occurred;
 - (11) the name and telephone number of a utility employee who may be contacted about the outage;
 - (12) approximate number of crew(s) involved in the power restoration; and
 - (13) whether the outage is considered an Excludable Major Event.
- Each Company must report within a 24-hour period of an accident the following information:
 - (1) time and date of incident;
 - (2) time and date of the notice to the Department;
 - (3) location of the incident;
 - (4) a detailed description of the accident including information about fatalities, injuries, facilities and third-party property damage; and
 - (5) the name and telephone number of a utility employee who may be contacted about the accident.

While the DTE has not required utilities to send any of this information directly to customers, it does require that utilities insert the DTE's website, from which this information can be downloaded, in customer bills.⁴²

The Department has generally given the utilities' annual reports a fairly cursory review. Requests for the Department to open investigations, allow discovery, and conduct hearings on the reports have been denied.⁴³

B. Concerns and Possible Enhancements

The scope of information required to be filed appears to be as broad or broader than other jurisdictions. Indeed, one might question whether it is too broad. For example, the need to report policies on tree trimming and spare parts is questionable; a less burdensome, but still adequate, requirement would be simply to report any changes in policies from the prior year. Each item should be reviewed to be sure it is adding value to monitoring utilities' performance in the area of service quality

On the other hand, the Massachusetts requirement to file this information solely with the DTE is narrower than the filing requirement of many other jurisdictions. Many states also require that the information, or a summary of it, be sent directly to customers. While we have not found any quantitative or qualitative information about the benefits of this kind of requirement, the obligation to communicate service quality information –both good and bad-- directly to customers should provide an additional incentive for utilities to maintain “good” grades on their report card. In addition, Report Cards help inform customers as to the level of service quality they are entitled to expect.

⁴² June 29, 2001 Order in D.T.E. 99-84, pp. 19-20.

⁴³ Issues relating to conducting more extensive reviews of these reports are addressed in Section III of this memorandum.

A stipulation approved by the Maine PUC in a proceeding involving performance based regulation for Maine's largest electric utility provides an example of this kind of customer report card requirement:

Customer Report Card: Each August beginning in 2002 and based upon the prior year's performance, CMP will distribute an annual report card to all customers on the Company's service quality and reliability performance for the previous calendar year as measured by the [customer service] indicators. The report will list the indicators and baselines and will indicate the Company's actual performance for the previous year. Any penalties imposed pursuant to the penalty mechanism described above will also be reported.⁴⁴

Two examples of actual customer report cards, the first for Puget Sound Energy, and the second for Pacific Power Company, are reproduced in Attachment A to this report.

There is also an issue of whether data designed to show performance under particular benchmarks should be reported on a company-wide or operating area (e.g., division or district) basis. While benchmarks should presumably remain company-wide in order to be comprehensible and meaningful, reporting data by utility operating area in some cases should be considered to better observe performance on a smaller scale. This may be most useful for measures such as system reliability, where operations tend to be decentralized and utility data may be assembled from operating areas to begin with.

⁴⁴ Maine PUC Docket No. 99-666, Central Maine Power Company Request for Approval of Alternative Rate Plan (Post-Merger) "ARP2000", Order Approving Stipulation (November 16, 2000), ¶ 26.

V. ASSURING DATA QUALITY/INTEGRITY AND CONSISTENCY AMONG UTILITIES

A. Status Quo

Data quality, integrity and consistency are critical issues for SQ plan effectiveness. Clearly, SQ plans are no better than the data on which benchmarks and performance indicators are based. Consistency is important both so that the imposition of penalties among utilities is fair, and in some cases to enable the regulator to develop benchmarks that transcend company-specific historical performance.

In the proceedings leading to the current SQ regulations, the DTE and the parties appear to have been well aware of the importance of data quality issues, and the comments and Orders devote considerable attention to them. Ultimately, the DTE addressed these issues in a variety of ways. In some instances, the DTE declined to adopt performance measures that might otherwise have been desirable based on the difficulty or expense of gathering reliable data;⁴⁵ in others, lack of quality data led it to adopt measures on a reporting basis only, without penalties for poor performance;⁴⁶ in still others, the Department addressed the issue by directing the utilities either to begin gathering data on a consistent basis, or to file information on whether and how such data could be developed.⁴⁷

⁴⁵ See, e.g., August 17, 2000 Order in D.T.E. 99-84, p. 18 (declining to adopt service quality measures for power quality disturbances such as voltage transients because they would require “costly installation of specialized equipment at customer premises with no resulting effectiveness”).

⁴⁶ See, e.g., August 17, 2000 Order in D.T.E. 99-84, p. 10 (“The Department, however, acknowledges the concern that the surveys can be influenced by the manner in which questions are asked, by company advertising, or by other factors. Therefore, the Department proposes to treat the consumer surveys as an informational performance measure only, with no penalty attached”).

⁴⁷ See, e.g., June 29, 2001 Order in D.T.E. 99-84, p. 7 (directing each utility to file a report that “(1) details its individual data collection efforts, (2) identifies what nationwide, regionwide, and statewide performance data is potentially available for a comprehensive database, and (3)

The DTE issued its guidelines for SQ plan content as an attachment to its final order in Docket No. 99-84. Utilities were directed to file plans that either tracked those guidelines, or provided an explanation of reasons for not doing so. The DTE reviewed the company plans and issued orders either accepting them or requiring modifications. The current plans on file largely track the 99-84 guidelines (with the exception of the Grid operating company plans which, as discussed above, are controlled by different regulatory authority).

With respect to issues of data quality and consistency, the Guidelines contain definitions of key terms (Section I.B); describe the scope of data to be used in benchmarking (Section I.C); and set forth the parameters of each of the service quality measures, in varying levels of detail (Sections II-VI). They also prescribe the formulas on which penalties (and offsets) are to be determined (Section VII), and the matters on which performance information and company policies are to be reported (Section VIII).

Embedded in these provisions are various devices designed to reduce or eliminate data quality or inconsistency problems. For example, recognizing that utilities maintained different approaches to gathering telephone response time data, the DTE accorded them leeway in their reports, but required that they all move to a consistent basis over five years:

Each Company shall report the percentage of telephone calls that are handled within a time interval that is consistent with a Company's existing telephone response-time measurement system, or as otherwise approved by the Department. Companies who have had no telephone response-time measurement system until the date of this Order shall adopt a 20-second

assesses the feasibility of establishing a co-operative approach to comparative benchmarking, under which all gas and electric companies would develop jointly a data-gathering/data-sharing consortium that would compile comparative data").

performance standard. At the conclusion of five years from the date of this Order, all Companies shall adopt the 20-second performance standard.⁴⁸

With respect to customer surveys, the DTE was quite precise as to the questions that the utilities were to pose to customers. In the case of utilities conducting the services using their own staff (as opposed to outside consultants), pre-approval by the DTE of the method and questions of the survey was required.⁴⁹

Where input data was generated by the DTE rather than the utilities (*e.g.*, data on billing adjustments), the utilities were to obtain that data from the Department, but were expressly afforded the opportunity to have company-specific meetings with the DTE to review their performance.⁵⁰

The DTE also recognized that utilities might have maintained historical data on SAIFI and SAIDI that was compiled differently than as prescribed in the Guidelines. Those utilities were permitted to continue using their historical method, so long as they explained why their historical data could not be converted to the Guideline method, and they then began compiling their data in accordance with the Guidelines.⁵¹

In sum, while striving to maximize data quality and consistency, the DTE recognized the need for flexibility in its Guidelines, and adopted a variety of pragmatic approaches to accommodate individual utilities' circumstances.

⁴⁸ Attachment 1 to June 29, 2001 Order in D.T.E. 99-84, Sec. II.A.

⁴⁹ *Id.*, Sec. II.C.

⁵⁰ *Id.*, Sec. III.B.

⁵¹ *Id.*, Sec. VI.A.

B. Concerns and Possible Enhancements

Data quality can be compromised for a number of reasons, including deliberate or negligent actions by the company; technology that either does not work as expected or when changing the process from a manual to a computerized approach; and ambiguities in rules, leading companies to interpret them differently.

While we have not been made aware of deliberate or negligent misreporting by Massachusetts utilities, there have been events of misreporting of both kinds involving other utilities. For example, at the end of 2003 Xcel Energy self-reported to Colorado regulators that it had significantly understated the average duration of customer outages in a prior filing⁵²; and Southern California Edison employees were recently found to have attempted to falsify data to influence the outcome of customer satisfaction surveys.⁵³

A recent case involving Bangor Hydro-Electric Company provides an example of data quality problems associated with technology.⁵⁴ The utility itself asked the Maine PUC to open an investigation into the CAIDI and SAIFI indices adopted by the Commission when the utility discovered, after replacing a legacy customer information system, that the old system failed to capture a significant number of outages. An informal investigation into this matter determined that

⁵² "Xcel Energy Updates 2003 Outage Figures," Business Wire Report (December 30, 2003). The Minnesota Public Utilities Commission has undertaken an audit of Xcel's outage reporting, which has led to an agreement by Xcel to undertake measures to ensure more accurate reporting. See In the Matter of an Investigation and Audit of Northern States Power Company (Xcel Energy) Service Quality Report, Order Accepting Settlement Agreement (March 10, 2004).

⁵³ Chartwell CIS and Customer Service Research Series, Vol. 3, No. 4, p. 1 (April 15, 2004), published at http://www.energylibrary.com/file_display_freesummary.cfm?id=1255&freesummary=1&app_id=21.

⁵⁴ MPUC Docket No. 2003-706, Bangor Hydro-Electric Company, Investigation into BHE's ARP Service Quality Indices, Petition filed September 24, 2003.

indeed the data initially relied on to establish CAIDI and SAIFI targets were flawed and revised targets have been established.

During the investigation into the Bangor Hydro Electric case, additional insights were gained on how inconsistencies in data reporting can arise.⁵⁵ In the discovery process, many questions were asked about the details and processes used by the utility to develop its reliability statistics, including customer counts, duration and the criteria under which certain kinds of outages are excluded from interruption indices. It was learned that the utility had used estimates from field crews to establish the number of customers out of service and restored to service, and had applied the exclusion criteria differently than intended by the PUC. Among the points discussed during this case were the following:

- The source of outage reported data had a direct bearing on its quality. Sources varied from the line crews radioing into each service center with a rough estimate of customers and duration, to automated communication between devices/equipment on the system that are linked to very accurate customer counts and precise times for outage duration.
- The exclusion criterion applied to actual outage data and used for developing reliability statistics is a significant factor to consider in establishing reliability targets. Reliability results may vary significantly between service areas within the utilities service territory.

Generally speaking, the tools available to regulators to ensure good data quality and consistency among reports include precise regulatory definitions and protocols; requirements for utilities to obtain regulatory approval for changes in data tracking and measurement protocols; requirements to report instances where the utility learns of possible flaws in its reporting; audits; and investigations. While the desirability of precision in defining data to be reported

⁵⁵ Ibid.

and the protocols by which it is assembled is easily understood, it is not always simple to predict where problems will arise. Audits and investigations are commonly used to detect unanticipated data quality problems.

While it is beyond the scope of this report to evaluate the precision in SQ related definitions applicable to Massachusetts utilities, utilities in other jurisdictions have plans that appear to be more precise and detailed. Puget Sound Energy and Vermont Gas Company are examples of utilities with such plans.⁵⁶ On the other hand, in Massachusetts the DTE staff negotiating the terms of individual plans and reviewing annual utility filings evidently have attempted to remove ambiguities and inconsistencies as they have become apparent.⁵⁷

The Vermont Gas SQ Plan provides an example of requirements to clear changes in data tracking and reporting in advance with the regulator, and to report instances where the utility learns of data quality problems:

7. VGS shall review with the DPS any change to VGS' tracking, measurement, or reporting protocols prior to the implementation of such changes. If the DPS and VGS are unable to agree upon the changes requested, nothing in this Plan shall preclude the DPS or VGS from seeking appropriate relief from the PSB.

8. VGS shall have an affirmative duty to report missing data or other events that could reasonably affect the quality of the data at the time the Company becomes aware of such events. Any reported data related to the Plan that reflects significantly altered measurement procedures or data acquisition methods that

⁵⁶ See Puget Sound Energy Electric Reliability Monitoring and Reporting Plan In Compliance with WAC 480-100-393 (January 2002), published at [http://www.wutc.wa.gov/webdocs.nsf/0/7b3acc365125808688256b49005f020f/\\$FILE/PSERevisedReliabilityReportPlan.pdf](http://www.wutc.wa.gov/webdocs.nsf/0/7b3acc365125808688256b49005f020f/$FILE/PSERevisedReliabilityReportPlan.pdf); Vermont Gas Systems Service Quality & Reliability Performance, Monitoring And Reporting Plan ("Vermont Plan"), Attachment to Vermont Pub. Serv. Board Order Approving Final Service Quality Plan (May 1, 2002), published at <http://www.state.vt.us/psb/orders/2002/files/6495vgsfinalsqrp.pdf>

⁵⁷ See, e.g., December 10, 2001 filing of Western Massachusetts Electric Company in D.T.E. 99-84, amending four elements of WMECO SQ plan pursuant to DTE directives.

have not been agreed to between VGS and the DPS may be subject to challenge and potential exclusion from results.⁵⁸

It is our understanding that the extent of any problems in the quality of data underlying the reports filed by Massachusetts utilities is unknown, in large part due to the unwillingness of the DTE to open investigations, allow discovery, or conduct hearings on the filings. While provisions such as those contained in the Vermont Gas SQ plan may have some value here, hopefully this discussion shows the potential for problems to exist, and will be useful in persuading the DTE to conduct an audit of data quality and/or open an investigation. Only if the DTE does so will it be possible fully to evaluate the quality of the inputs in the utilities' plans, and the need for greater precision in definitions and reporting requirements.

⁵⁸ Vermont Plan, *supra*.

ATTACHMENT A

EXAMPLES OF CUSTOMER REPORT CARDS

PUGET SOUND ENERGY

ANNUAL PERFORMANCE REPORT CARD

Puget Sound Energy customers justly expect high levels of service. We back our commitment to efficient service with a \$50 credit to your account if we ever fail to meet a scheduled appointment. In 2003, Puget Sound Energy achieved 10 out of the 11 service-quality areas in which our performance is measured and reported to you every year. (See other side).

Use link below to view table of results:

<http://www.pse.com/brochures/brochure2774dated200404.pdf>

2003 Customer Service Performance Highlights

- For 2003, we set the performance bar higher in three areas—fewer and shorter electric outages, higher customer satisfaction with field services and a lower percent of customers disconnected for non-payment of bills—and met the benchmark in all three areas.
- In addition to meeting 10 of the 11 service measurements, we also improved our scores in six areas.
- The one area where we missed meeting the target was in your satisfaction with our overall performance. While the 86-percent rating improved over 2002 and as 2003 went on, it fell short of our 90-percent customer-satisfaction benchmark.
- Through our Customer Service Guarantee program, we credited customers a total of \$45,500 from missing 3 percent of our total 141,860 appointments scheduled in 2003.

We are dedicated to meeting your expectations of exceptional service, while finding more ways to continually improve our performance.

Customer Service Commitments

Annual Report

wash

Our Guarantees

1 Restoring your power

If the power goes out, we'll restore your electricity as soon as possible. But if it's not back on within 24 hours, barring damage due to extreme weather, you can claim:

- \$50 if you are a residential customer,
- \$100 if you are a commercial or industrial customer, plus
- \$25 for each additional 12-hour delay. You must claim your credit by contacting us within 30 days of the interruption.

2 Appointments

If we set an appointment with you, we'll keep it. If we miss our appointment, we'll credit your account \$50.

3 Switching on power

We'll switch on your power supply within 24 hours of your request providing no construction is required, all government inspections are met and required payment arrangements are made. If we don't, we'll credit your account \$50. We'll also credit you \$25 for each additional 12-hour delay up to a maximum of \$200.

4 Estimates for new power supply

When you contact us to obtain an estimate on providing a new power supply, we'll call you within two working days to arrange an appointment with our estimator. If it takes longer, we'll credit your account \$50. Once we have all of the necessary information, we'll provide the estimate within five working days (or within 15 working days if we need to alter our network). If we miss the deadline, we'll credit your account \$50.

5 Billing questions

We'll respond to most questions about your bill at the time you contact us. If your questions require further investigation, we'll respond within 10 working days. If we don't, we'll credit your account \$50.

6 Meter problems

If you have a problem with your electric meter, we'll investigate and let you know the results within 15 working days. If we don't, we'll credit your account \$50.

7 Planned interruptions

We'll give you at least two working days' notice if we need to turn off your power for planned maintenance work or construction. If we fail to give you this notice, you can claim:

- \$50 if you are a residential customer,
 - \$100 if you are a commercial or industrial customer.
- You must claim your credit by contacting us within 30 days of the interruption.

8 Power quality concerns

If you advise us of a power supply problem and we don't know its cause, we'll start investigating and report back to you within seven working days. Or if we know the cause, we'll explain it within five working days. In either case, if it takes us longer, we'll credit your account \$50.

Automatic payments

We will credit your account automatically within 10 working days (in most cases) and notify you by letter if we are unable to meet Customer Service Guarantees #2, 3, 4, 5, 6 or 8.

How to make a claim

For Guarantees #1 and 7, listed above, you must make a claim within 30 days of the interruption. We will investigate your claim and provide you with the results within 10 working days. If we have failed to meet our Guarantees, we will credit your account the amount specified for the applicable Guarantee.

To file a claim, call us at 1-888-221-7070, or write to us:

Pacific Power
Customer Guarantees
P.O. Box 25308
Salt Lake City, UT 84125

#1 APRIL 2003 TO MARCH 2004		
Number of opportunities to serve you	Number of missed guarantees	Our success rate
2,710,477	21	99.9%

#2 APRIL 2003 TO MARCH 2004		
Number of opportunities to serve you	Number of missed guarantees	Our success rate
27,614	98	99.6%

#3 APRIL 2003 TO MARCH 2004		
Number of opportunities to serve you	Number of missed guarantees	Our success rate
77,289	265	99.7%

#4 APRIL 2003 TO MARCH 2004		
Number of opportunities to serve you	Number of missed guarantees	Our success rate
22,731	295	98.7%

#5 APRIL 2003 TO MARCH 2004		
Number of opportunities to serve you	Number of missed guarantees	Our success rate
25,790	90	99.7%

#6 APRIL 2003 TO MARCH 2004		
Number of opportunities to serve you	Number of missed guarantees	Our success rate
2,080	32	98.5%

#7 APRIL 2003 TO MARCH 2004		
Number of opportunities to serve you	Number of missed guarantees	Our success rate
52,955	59	99.9%

#8 APRIL 2003 TO MARCH 2004		
Number of opportunities to serve you	Number of missed guarantees	Our success rate
774	2	99.7%

Some exemptions

Guaranteed credits apply to metered customers and applicants for new service. There are some circumstances in which our guaranteed credits don't apply:

- If we took all reasonable steps to meet the Guarantees, and it was still not possible to do so for such reasons as:
 - a major event, such as severe weather
 - action or default by someone other than our employee that is outside our control
 - missed or cancelled an appointment or we couldn't gain access or contact you, or if you failed to provide adequate information
 - it wasn't safe to perform a necessary task
 - you sent required information to the wrong address
- If we missed the guarantee based on your specific direction
- If you agreed to an interruption with less than two working days' notice or a planned interruption did not happen
- If we had to interrupt your power supply to complete urgent repairs or to complete permanent repairs within three working days of making temporary repairs after an unplanned interruption
- If testing your meter caused a brief interruption or a planned interruption was less than five minutes
- If we canceled or rescheduled an appointment after providing you at least 24 hours' notice

Performance Standards

At Pacific Power, we introduced Performance Standards to hold ourselves accountable in a few key areas of importance to our customers. These standards are a way for us to measure our progress on our goals of improving our distribution system, monitoring the quality of the electricity we supply and being responsive. You can count on us to continually strive for excellence.

Quality of electric supply

The first four Performance Standards are technical measures of quality. For this report, we've restated the standards and are pleased to report that we are nearly on target in meeting our objectives from April 2003 to March 2004. Complete details are available in our quality of electric supply report. If you would like a copy of this report, please contact us.

#1 System availability

By 2005, we will reduce the average length of time customers are without power due to supply interruptions by 10 percent.

#2 System reliability

By 2005, we will reduce the average number of times customers experience supply interruptions by 10 percent.

#3 Momentary interruptions

By 2005, we will reduce the average number of momentary power interruptions customers experience by five percent.

#4 Worst-performing circuits

Over a two-year period, we will improve the performance of the five worst-performing circuits in each state by 20 percent. Five new circuits in each state each year will be selected for improvement annually for the next five years.

#5 Restoring supply after a fault

We will ensure that at least 80 percent of our customers who experience a power interruption have their power supply restored in less than three hours.

#6 Answering the telephone

We committed to answer 80 percent of all telephone calls to our Customer Service Centers within 20 seconds.

#7 Responding to the Commission

We will respond to all complaints received from Commissions within three working days and respond to complaints regarding service disconnection within four working hours. We are committed to resolve 95 percent of all complaints within 30 days.



If you have any questions about our Customer Service Guarantees or Performance Standards, please call us toll free at 1-888-221-7070 and listen for the Customer Guarantees selection or visit www.pacificpower.net.



CA 1005 5/04 ©2004 PacificCorp

